

# Hard-Earned Income and Tax Compliance

## A Survey in Eight Nations

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**Abstract.** Is the effort invested to achieve taxable income a relevant factor for tax compliance? If the value of income increases with the effort exerted, reluctance to pay taxes should be high. On the other hand, if income is perceived as compensation for one's endeavor, there is too much at stake to take the risk of being audited and paying a fine. Consequently, tax evasion should be more likely if income was obtained easily. These contradicting predictions were tested in a questionnaire study with samples from eight countries (Australia, Austria, England, France, Italy, New Zealand, Spain and Switzerland;  $N = 1,223$ ). Results show that the effort exerted to obtain taxable income and the aspiration level matter in compliance decisions. Hard-earned money is more likely to be reported honestly to tax authorities, particularly if the aspiration level can be satisfied by honest tax reporting.

**Keywords:** tax compliance, tax evasion, effort, sunk costs, tax morale

## Introduction

Without question, paying taxes hurts. It may particularly hurt if one has had to work hard to earn income, whereas money achieved rather easily – such as from capital gains – may go as easily as it was realized. The question addressed in this paper is whether reluctance to pay taxes varies with the degree of effort put into earning one's income. Are taxes on hard-earned income more likely to be evaded than taxes on income achieved without any effort? Or does the effort invested to earn taxable income deter from evasion, since paying a fine following an audit would further reduce effective income?

To enhance compliance, economic models emphasize the importance of audits and fines (Allingham & Sandmo, 1972; Srinivasan, 1973). However, the probability of being detected is extremely low in most countries – for example, the audit probability in the U.S. is estimated to be about 1% (Andreoni, Erard, & Feinstein, 1998) – and fines are relatively low. In Austria, tax evasion is penalized with a maximum of twice the evaded amount; the actual penalty, however, rarely exceeds 40% of the evaded amount. Nevertheless, the majority of taxpayers pay their dues honestly. Tax evasion is lower than the neoclassical economic model predicts. Thus, since the early work of Schmolders (1960) and Strümpel (1966), the focus of tax research is on determinants of tax morale

beyond economic variables. Subjective knowledge of tax law, perceived distributive, procedural and retributive fairness have been identified – among other things – to affect tax morale and compliance (for a recent literature review see Kirchler, 2007).

Another relevant factor in compliance could be the workload or effort necessary to obtain taxable income. On the one hand, it can be assumed that hard-earned income is subjectively of higher value and consequently reluctance to pay taxes may be especially high. On the other hand, if the net income after honest payment allows compensation for one's *sunk* effort, the risk of being audited might deter from evading taxes. In the study presented in this paper, these competing predictions are tested in samples from eight nations, which all differ in their levels of tax morale. After elaborating our predictions in more detail, we compare tax morale in the participating nations as measured by our survey, and report results from testing the predictions on the impact of effort on tax compliance.

## Effort and Tax Compliance

Whereas from a rational perspective the value of income should be independent of its source, psychologically it

makes a substantial difference, whether an outcome was reached by luck or skill. In experiments by Loewenstein and Issacharoff (1994), participants who were informed that they had obtained a coffee mug for their performance in a prior task, valued the mug more highly than those who believed they had received it by chance. Further, participants who received a mug as a prize for exemplary performance on a task valued it more highly than those who obtained it regardless of their poor performance.

With regard to income, it can be expected that its value increases subjectively with the amount of effort invested to obtain it. According to findings on source dependence in valuation of objects, hard-earned income should be of more value than income obtained easily. Consequently, paying taxes out of one's own pocket should be perceived as a loss. Within the framework of prospect theory (Kahneman & Tversky, 1979), it can be expected that in high loss situations people are especially risk seeking and try to avoid losses. The assumption of effort changing the taxpayer's value function is presented in Figure 1. The payment of the same amount of taxes ( $-x$ ) is perceived as a more severe loss ( $V'(-x)$ ) in the steeper value function for hard-earned income, than in the value function for income obtained easily ( $V(-x)$ ). Predictions on tax behavior deriving from these assumptions are straightforward: Depending on the effort put into earning taxable income, its (subjective) value and reluctance to pay taxes increases. Noncompliance is therefore likely if hard-earned income is to be declared.

A similar prediction is supported by research on sunk cost effects. Though from an economic perspective, only incremental, that is, future, costs should be considered as decision criteria, Arkes and Blumer (1985) demonstrated that investments of money, effort, or time made in the past do affect actual decisions. In decisions under risk, the presence of sunk costs lead to more risk seeking choices than an absence of prior losses (Thaler & Johnson, 1990). More recent research, however, points out that sunk cost effects partly depend on the nature of prior investments. Financial sunk costs should be distinguished from temporal (Soman, 2001) and behavioral sunk costs (Zeelenberg & van Dijk, 1997). Regarding the latter category, Zeelenberg and van Dijk (1997) argue that the sunk cost effect can reverse if a certain monetary compensation is expected due to the effort invested in work. In their experiment, participants had to imagine that they had worked a whole day and were expecting their payment. Their supervisor either offered to pay them an amount that had been previously negotiated or invited them to gamble with the possibility of earning twice as much as the negotiated salary or earning nothing. The safe option of receiving the expected payment was chosen more often than in a control condition, where participants did not learn about the events before the choice. Complementary findings are reported by Arkes et al. (1994) from a series of studies on windfall gains, that is, unexpected gains. Windfall gains were more readily in-

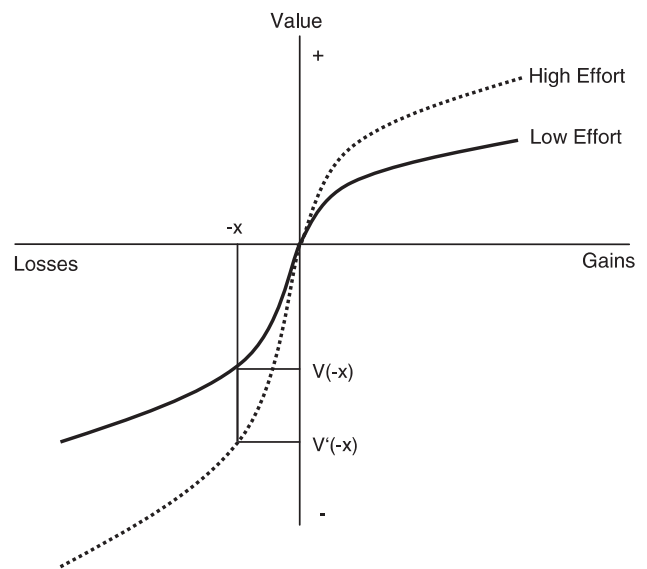


Figure 1. Change of value function in prospect theory depending on the amount of effort put in earning one's income.

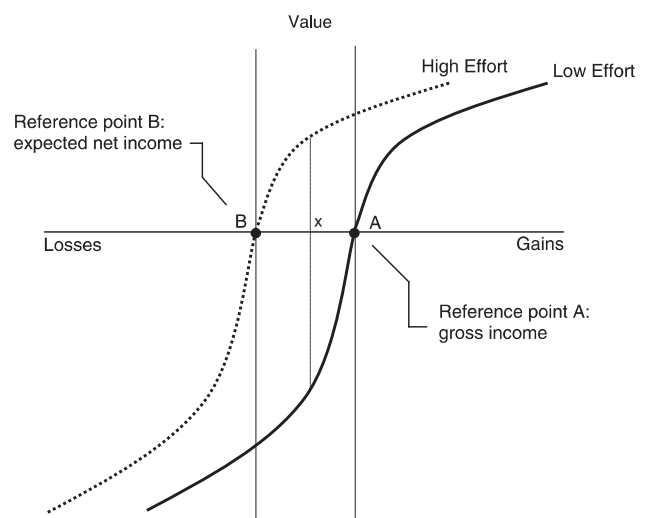


Figure 2. Shift of reference point in prospect theory's value function as consequence of expecting compensation for investing a high amount of effort.

vested in risky gambles than expected gains. Thus, in contrast to financial sunk costs, prior investments of effort seem to result in risk-averse choices. For tax behavior this would mean that taxable income earned by high effort is likely to be declared honestly. Even though effective income could be increased by evading taxes, being noncompliant would bear also the risk of being audited and paying a fine. If the honestly declared net income corresponds to the aspired compensation of one's effort and work, the individual level of aspiration (Hel-

son, 1964; Weiner, 1996), compliance is likely since paying a fine following an audit would mean falling below one's aspiration level and experiencing the feeling of "... having worked for nothing" (Zeelenberg & van Dijk, 1997; p. 682). The notion of an aspiration level serving as alternative reference point was previously mentioned by Kahneman and Tversky (1979) in their seminal paper on prospect theory. Potential consequences of such an alternative reference point are exemplified in Figure 2. In this Figure, point *A* represents the gross income, which is typically used in compliance decisions of the self-employed who pay taxes out of their own pocket. From this point the decision about whether to pay any given amount of taxes (*x*) occurs in the loss domain, where prospect theory would predict risk-seeking choices. If, however, while completing their hard work taxpayers were anticipating their net income as financial compensation for their work, point *B* would serve as the reference point, that is, the expected income. Seen from point *B*, outcome (*x*) from evading taxes lies in the gain domain of the value function, where risk-averse choices are more likely to occur (Kahneman & Tversky, 1979).

To summarize our two-sided predictions, we hypothesize that either high investment of effort in one's own job leads to high valuation of income, and in consequence, to more tax evasion, or the opposite is true, that is, high effort put into earning taxable income increases tax compliance if the tax deduced income meets people's expectations – the aspiration level. These predictions are tested in eight countries with varying tax morale and different sizes of shadow economy. The countries vary in regard to tax rate, tax practices, and norms. Assuming that the impact of effort is a general phenomenon, valid independently of cultural differences, we expect similar effects of effort on compliance in all considered nations.

## Method

### Participants

Eight convenience samples were collected in Australia (Canberra), Austria (Vienna), England (Exeter), France (Paris), Italy (Chieti-Pescara), New Zealand (Christchurch), Spain (San Sebastian), and Switzerland (Zurich). Overall, 1,223 participants joined the study. Sample sizes in each nation ranged from 117 to 211. The average age of participants was 22 years ( $SD = 5$ ). Slightly more females than males participated (57% vs. 43%), which was especially the case in Austria and France. A majority of participants were students and/or working part-time. Detailed sample descriptions for each country are provided in Table 1.

Table 1. Sample description by country

	N	Sex		Age (years)	
		Female	Male	M	SD
Australia	123	50%	50%	19.7	2.1
Austria	117	89%	11%	24.9	6.6
England	147	44%	56%	19.8	1.3
France	128	71%	29%	20.9	5.0
Italy	187	53%	47%	20.4	1.7
New Zealand	138	64%	36%	20.9	5.7
Spain	211	57%	43%	24.6	7.8
Switzerland	172	37%	63%	22.2	3.1
Total	1223	57%	43%	21.8	5.2

### Material and Procedure

Each participant had to complete one of four versions of a questionnaire, describing different scenarios about the work of a freelance architect (to decrease social desirability, all text in the questionnaire was worded in the third person). The work of the architect was either described as rather easy (Low Effort Condition), with no problems involved in acquiring and completing a profitable project, or as unusually effortful (High Effort Condition), starting with difficulties in acquiring a project, which – when the architect finally was assigned to it – turned out to be an annoying task involving hard work. In both conditions, salary for the project amounted to 60 800 EUR<sup>1</sup>. To manipulate the aspiration level, participants were told that typically architects in comparable projects earn more, that is, 62 300 EUR (high aspiration level condition) or less, that is, 59 300 EUR (low aspiration level condition).

Subsequently, participants read that the architect considered including a deduction of travel expenditures and accommodation costs in his tax report. These bills, however, had been fully covered by the architect's customer, writing them off would therefore be not correct. By including the deduction, effective salary would increase to 63 300 EUR, but if tax authorities thoroughly check the architect's tax report (audit probability was indicated as 33%), a fine has to be paid and effective salary would be reduced to 55 800 EUR. Participants had to indicate on a 9-point scale how high they considered the probability to be that the architect would cheat in his tax report and include the incorrect deduction (1 – *compliance*; 9 – *evasion*).

Thus, in the four scenarios of the questionnaire effort and aspiration level were manipulated in a 2 × 2 design with likelihood of tax compliance as dependent variable. Note that a satisfactory income in the Low Aspiration Level Condition would be achieved with an honest tax report, but in the High Aspiration Level Condition a satisfactory income can be reached only by cheating in the tax report.

<sup>1</sup> In countries with different currencies, the indicated salary was 60 800 Australian dollars, 60 800 New Zealand dollars and 94 240 Swiss francs.

In the last section of the questionnaire, participants' tax morale was measured with a 5-item scale (*Taxes contribute to social equity within a state; Tax evasion is not really a crime* (recoded); *Taxes are necessary to assure the functioning of a state; Taxes constrain my freedom of decision* (recoded); *In return for the taxes to be paid one doesn't receive appropriate rewards* (recoded); 1 – disagree to 6 – agree; Cronbach's  $\alpha = .58$ ). Also, participants' sociodemographic characteristics were collected.

The questionnaire was carefully translated by native speakers into the respective national language of the participating countries.

## Results and Discussion

To test if the eight samples reflect the general tax morale of the countries they were drawn from, aggregate tax morale within each country was compared with estimates by Schneider and Klinglmaier (2004; p. 42–45) for the size of shadow economy in the year 2000. Their estimates were used in a previous study (Alm & Torgler, 2006), where tax morale in 15 European countries and the United States was negatively correlated to the size of shadow economy.<sup>2</sup> Estimates from the secondary source and means for our measure of tax morale for each nation are provided in Table 2. Whereas Swiss participants had the highest values for tax morale, the lowest tax morale was found in Italy and Spain. Figure 3 shows the strong negative correlation between aggregate tax morale and the size of the shadow economy (Spearman's  $\rho(6) = -.83$ ;  $p = .01$ ). The negative relationship between tax morale and size of the shadow economy in the eight countries corresponds with previous findings by Alm and Torgler (2006), and provides some evidence for the comparability of the observed samples to the national average.

The hypothesis on the impact of *sunk* effort on tax compliance was tested in a mixed-model ANCOVA with effort and aspiration level as fixed factors, nation as random factor and participants' ratings on the 9-point tax compliance item (1-compliance; 9-evasion) as the dependent variable. Participants' age, sex, and tax morale were included as covariates. The mixed-model approach was chosen because treating nation as random factor ensures generalizability of any observed cultural differences. By modeling nation as fixed factor its effects would be valid only for the eight countries participating in our study. Means and standard deviations by experimental condition and nation are provided in Table 3.

Regarding the experimental conditions, tax compliance was affected by the main effect of effort,  $F(1, 6.43) = 6.91$ ;  $p = .04$ , and its interaction with the aspiration level,  $F(1, 2.67) = 19.73$ ;  $p = .03$ . The aspiration level by itself

Table 2. Tax morale and estimates for the size of the shadow economy by country

	Tax morale		Shadow economy*
	<i>M</i>	<i>SD</i>	% of GNP
Australia	3.99	0.69	15.3
Austria	4.04	0.86	10.2
England	4.10	0.78	12.6
France	4.06	1.00	15.3
Italy	3.77	0.92	27.0
New Zealand	4.10	0.84	12.7
Spain	3.85	0.84	22.6
Switzerland	4.24	0.81	8.8

\*Estimates were calculated for the year 2000 by Schneider and Klinglmaier (2004).

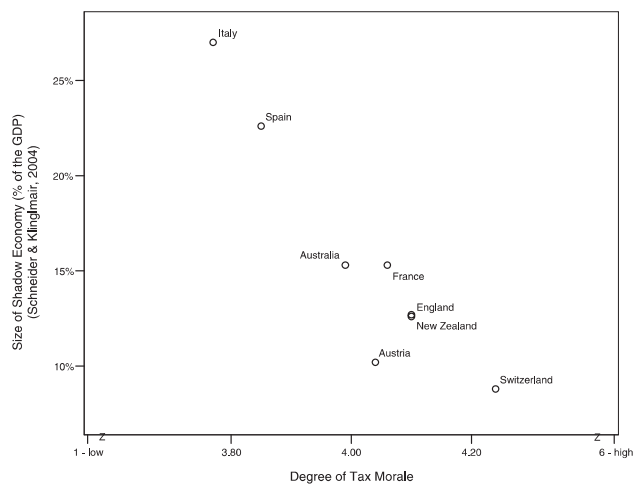


Figure 3. Tax morale and shadow economy in the eight countries.

had no impact on tax compliance,  $F(1, 5.71) = 0.01$ ;  $p = .93$ . As shown in Figure 4 the main effect of effort caused a general shift in tax compliance, that is, tax evasion was more likely in the low effort condition (Estimated Marginal Mean = 5.02;  $SE = 0.09$ ) than in the high effort condition (Estimated Marginal Mean = 4.69;  $SE = 0.09$ ; Contrast:  $F(3, 1129) = 7.14$ ;  $p < .01$ ). The aspiration level seems to trigger the effect of effort on compliance. Whereas at low aspiration levels tax evasion varied with effort (low effort: estimated marginal mean = 5.10;  $SE = 0.13$ ; high effort: estimated marginal mean = 4.61;  $SE = 0.13$ ; contrast estimate = .24;  $SE = 0.11$ ;  $p = .03$ ), tax evasion at high aspiration levels was not affected by effort (low effort: estimated marginal mean = 4.95;  $SE = 0.12$ ; high effort: estimated marginal mean = 4.77;  $SE = 0.13$ ; contrast estimate =  $-.09$ ;  $SE = 0.11$ ;  $p = .41$ ).

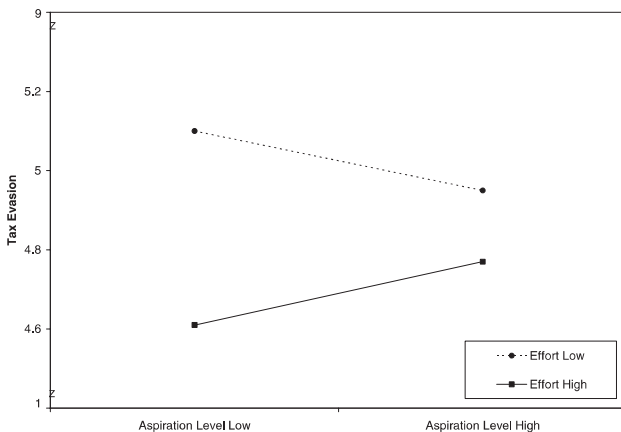
No main effect of nation was observed,  $F(7, 10.25) =$

<sup>2</sup> Two of the nations in our study, New Zealand and Australia, were not included in the analysis of Alm and Torgler (2006).

Table 3. Tax evasion by work effort, aspiration level and country

	Effort									
	Low					High				
	Aspiration level									
	Low		High		Low		High			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Australia	5.25	1.92	5.63	1.59	5.36	1.83	5.54	2.02		
Austria	5.17	2.34	4.42	1.98	4.77	1.90	4.80	2.23		
England	5.03	1.66	4.74	1.70	4.29	1.71	4.44	1.62		
France	4.92	1.92	5.04	1.92	4.35	2.06	4.21	1.79		
Italy	5.24	2.21	5.06	2.75	4.79	2.79	4.69	2.33		
New Zealand	4.88	1.82	5.29	2.02	4.94	1.83	5.45	1.82		
Spain	5.46	2.36	5.37	2.20	4.50	2.15	4.72	2.14		
Switzerland	4.76	2.02	4.42	2.27	4.41	2.14	4.46	1.79		
Total	5.11	2.06	5.01	2.14	4.64	2.09	4.77	2.03		

Note. Tax evasion was measured by a 9-point item (1-compliance; 9-evasion).



Note: Tax Evasion range: 1 – compliance; 9 – evasion

Figure 4. Likelihood of tax evasion by effort and aspiration level.

1.38;  $p = .31$ , but its interactions with effort,  $F(7, 3.65) = 10.20$ ;  $p = .01$ , and aspiration level,  $F(7, 6.48) = 4.04$ ;  $p = .05$ , indicate that effects of the experimental manipulations differed across countries. In spite of these interactions the core interaction effect between effort and aspiration level was significant as described above. Importantly, the three-way interaction of nation, effort, and aspiration level had no impact on tax compliance,  $F(7, 1129) = 0.14$ ;  $p = .99$ .

The covariates tax morale,  $F(1, 1129) = 4.21$ ;  $p = .04$ , and age,  $F(1, 1129) = 4.56$ ;  $p = .03$ , were significantly associated with tax compliance, the effect of sex,  $F(1, 1129) = 4.56$ ;  $p = .09$ , was only marginally significant.

In summary, hard-earned income was more likely to be reported honestly than income achieved easily. When high effort had been invested, tax compliance was especially high if the aspiration level was low enough to be

satisfied by an honest tax report. Evading taxes in such a situation would bear the risk of being audited, paying a fine and achieving lower income than expected. Cultural differences in tax compliance could not be observed, though the impact of effort and aspiration level seems to vary across nations. Some limitations to the generalizability of the present study arise from the fact that participants were mostly recruited from student samples. Although their average reports of tax morale correspond with findings from other studies on the shadow economy, it might be the case that students across cultures are more similar than *average* taxpayers are. Such similarities may be found in the level of income, the level of knowledge, and education, but also in the level of experience with taxpaying per se. Another potential limitation is that choices in the tax compliance problem were without financial consequences. Although the correlation between individual tax morale and tax evasion was in the expected direction, it was nevertheless small,  $r(1192) = -.08$ ;  $p < .01$ , suggesting that other factors influenced reported tax compliance. In follow-up studies, the effect of effort on tax evasion should be replicated with more tax experienced participants and by providing monetary consequences for the compliance decision.

The observation that tax compliance increases with the effort invested to earn taxable income is consistent with prior findings from a laboratory experiment (Kirchler, Muehlbacher, Hoelzl, & Webley, in press) and is in line with theory on the reverse sunk cost effect (Zeelenberg & van Dijk, 1997). Accordingly, the presence of sunk effort results in adopting a different reference point while evaluating outcomes of a decision and consequently enhances risk-aversion. Supporting evidence for the effects of such a mechanism is provided by the interaction of effort and aspiration level we have found in the present study. Tax compliance was highest if high effort had been invested and if it was possible to achieve one's aspiration

level without evading. If the aspiration level was higher and a satisfying income was achievable only by cheating in the tax report, tax compliance was lower regardless of the effort invested.

Our findings on the effect of effort are also compatible with research on windfall gains (Arkes et al., 1994), where unexpected gains (such as easily earned income) were more readily invested in risky ventures (such as tax evasion). However, the studies by Arkes and his colleagues (1994) suggest that windfall gains are defined by their unexpectedness rather than by the effort invested. In the context of effort and taxpaying, therefore, the reverse sunk cost effect seems to be a more plausible explanation.

On a theoretical level, the interaction effect between effort and aspiration level supports the model of changing reference points, in line with the results by Zeelenberg and van Dijk (1997). Effort is important particularly when aspiration levels are so low that it can be reached by honest tax reporting. Although the effect of effort for high aspiration levels was not significant, it pointed in the same direction, that is, higher effort seems to increase tax compliance. On a practical level, effort seems the more important variable for mainly two reasons. First, for tax authorities aspiration levels are difficult to observe, whereas the amount of effort a taxpayer has invested could be determined more easily. Second, aspiration levels depend on a variety of factors for example, the income level in previous business periods, by comparison to peers, and might therefore change over time.

Practical implications from the results need to be drawn cautiously, and would need additional empirical support. However, the issue of effort investments and tax evasion would imply differential audit strategies, depending on the effort exerted in earning the taxable income. Persons who earn their income without much effort would, according to the present results, be more likely to evade taxes. Focusing audits on this group would promise a higher likelihood of finding evaders. It is too costly for tax authorities to check all tax reports for inconsistencies, so knowing where to look could improve efficiency. That some forms of income are easily earned seems quite indisputable for example, capital gains from stocks and bonds. For other forms of income, the effort exerted may vary more strongly with personal circumstances and with subjective interpretations. It seems plausible, for example, that young entrepreneurs struggle more and have to invest more effort into earning their income than more experienced entrepreneurs. It might also be possible to identify demographic characteristics that are correlated with a tendency to view work as effortful or easy.

In the words of Zeelenberg and van Dijk, “. . . sometimes there is too much invested to gamble.” (1997, p. 677). Translated to the tax setting, sometimes there is too much effort put into earning one’s money to risk losing even more by being caught after tax evasion. Although paying taxes hurts, paying an additional fine would hurt disproportionately more.

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